CONTENTS

12 **Research institutes in China** Zhao Shujun

16 **Market requirements of metal packaging** P. J. Habberley

21 **Coke gasification reaction temperature in iron- and steelplants in The People's Republic of China and its effects on blast furnace operation** Long Shigang

27 **Determination of thermodynamic stability of metallurgical cokes, with respect to graphite** B. S. Terry and X. Yu

33 **Role of coke size in sintering of hematite ore blend** C. E. Loo

41 **Developments in secondary steelmaking at Rotherham Engineering Steels** R. Ruddlestone, A. Goodall, M. Broxholme, and F. Faries

47 **Carbon content of steel samples determined by potentiometric analysis** R. Côté and C. W. Bale

52 **Effect of titanium treatment on grain size control in low alloy steels** P. E. Reynolds

59 **Methodology of quantitative estimates of iron and steel scrap arisings** A. Cavić, Lj. Nedeljković, and Dj. Simović

83 **Experiences with Tempcore at Sheerness Steel** W. J. Hewitt and T. Philips

89 **Mathematical modelling of iron ore sintering process** F. Patisson, J. P. Bellot, D. Ablitzer, E. Marlière, C. Dulcy, and J. M. Steiler

96 **Using high ash coals for cokemaking in integrated steelplants in India** A. Chatterjee, T. Venugopal, and H. N. Prasad

102 **Coke properties sampled at tuyere and control of deadman zone** Y. Iwanaga

107 **Production of stainless steel with very low carbon content** C. Bodsworth and A. W. Zetouni

114 **Mould heat transfer and solidification during horizontal continuous casting** J. E. R. Lima, J. K. Brimacombe, and I. V. Samarasekera

128 **Mathematical simulation of Stelmor process** R. D. Morales, A. López G., and I. M. Olivares

153 ***Presidential Address*** **A changing world** W. L. Mercer

157 **Potential of stainless steel for building cladding, including roofing: a case study** J. Peacock

159 **Applications for cladding** A. Gale

161 **Reduction behaviour in cohesive layer of blast furnace** Y. Iwanaga

169 **Heat transfer characteristics of molten slags** A. C. Mikrovas, S. A. Argyropoulos, and I. D. Sommerville

182 **Use of spreadsheets for modelling steelworks: Part 2 Evaluating strategies for enhancement of hot strip mills** E. C. Hewitt

190 **New process control system of Hoogovens' hot strip mill – key to improved product quality** G. J. Heesen and D. H. Burggraaf

196 **Measurement and analysis – basis for steel quality and customer confidence** T. J. Knox

201 **Problems related to use of low alloy steels in H_2S environments: industrial solutions** R. Blondeau

211 ***Technical Note*** **Kinetic rate equation for direct reduction of iron ore by non-coking coal** G. V. Reddy, T. Sharma, and S. Chakravorty

221 **Developments in codes and design methods** J. C. Taylor and R. M. Lawson

227 **British Steel plc: meeting the technical challenge** F. G. Wilson

245 **Oscillatory recirculation induced by intermittent, rotary, magnetic stirring** P. A. Davidson and F. Boysan

253 **Causes of sticker breakout during continuous casting** K. C. Mills, T. J. H. Billany, A. S. Normanton, B. Walker, and P. Grieveson

267 **Use of NH_4Cl–H_2O analogue castings to model aspects of continuous casting: Part 1 Asymmetry in inclined moulds** J. Jang and A. Hellawell

275 **Use of NH_4Cl–H_2O analogue castings to model aspects of continuous casting: Part 2 Columnar–equiaxed grain transition and crystal sedimentation rates** J. Jang and A. Hellawell

284 **Extension of analytical expressions for microsegregation** A. A. Howe

288 **Development of fixed outer dimension H-shapes** H. Hayashi, I. Yarita, T. Nozaki, M. Doi, M. Yamaguchi, and T. Seto

292 *Technical Note* **Process for recovery of non-ferrous metals from steel mill dusts involving pelletising and carbothermic reduction** F. A. López, F. Medina, J. Medina, and M. A. Palacios

319 *Keynote Address* **European ironmaking: developments, challenges, and opportunities** F. Fitzgerald

331 **Structure and properties of plain and alloyed ultrahigh carbon steel wire rod** B. D. Clarke and I. D. McIvor

342 **Calculation of CaS and MnS activities and their application to calcium treatment of steel** D.-Z. Lu, G. A. Irons, and W.-K. Lu

347 **Spatial distribution of magnetic field of linear inductors used for electromagnetic stirring in continuous casting of steel** M. Dubke, K.-H. Spitzer, and K. Schwerdtfeger

354 **Modified solution of arc furnace electrical circuit in terms of arc voltage** A. Wasowski

359 **Phosphorus and sulphur removal from liquid steel in ladle steelmaking processes** G. J. Hassall, D. P. Jackaman, and R. J. Hawkins

370 **Model for predicting steel temperature and thermal state of casting tundishes** A. Gastón, R. Laura, and M. Medina

387 **Repairing the modular ceramic lining of a forging furnace: an industrial case study** F. Lynch

388 **1991 Annual AISE Convention and Iron and Steel Exposition** E. Hewitt

390 **25th IISI Annual Conference report**

403 **Surface cracking in continuously cast products** T. J. H. Billany, A. S. Normanton, K. C. Mills, and P. Grieveson

411 **Pretreatment of hot metal with soda ash and with soda ash–sodium sulphate mixture** A. S. Venkatadri, M. Ghosh, V. Ramaswamy, and S. K. Tiwary

417 **Mathematical model for determining preheating schedule of dolomite ladles in melt shops** J. K. Saha, S. K. Ajmani, and A. Chatterjee

423 **Calculation of equilibrium diagrams for direct reduction of iron ore** J. D. Esdaile and M. Motlagh

431 **Finite element analysis of roll misalignment during continuous casting** B. Barber, B. M. Leckenby, and B. A. Lewis

437 **Mathematical modelling of shaft based direct reduction processes of iron manufacture with recirculation of flue gases** N. K. Batra

446 **Numerical prediction of electromagnetically driven flow in ASEA-SKF ladle refining by straight induction stirrer** Wan-Soo Kim and Jong-Kyu Yoon

---

News and views

pages **3, 73, 145, 217, 297, 377**

Conference diary

pages **71, 142, 216, 239, 323, 397**

Translations

pages **68, 139, 214, 296, 375, 456**

The Institute of Metals Awards

page **151**